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Management and Technologies of Water, Waste Water, Waste and Circular Economy
WWW&CE

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WP 7 Quality assurance

Evaluation concepts and quality plans

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1 Summary of the Project

About 99 percent of all EU companies are SME, providing up to 70 percent of all jobs. Even though SME may have stable growth prospects, they are particularly well-positioned to solve pending environmental issues, and, thus, ensuring their growth in the sector of Green Economy. Nowadays, main hindrance to growth is a significant skills shortage across most sectors of the economy, while job vacancies in SME and overall unemployment and, in particular, youth unemployment, are steadily on the rise. Thanks to cooperation between educational institutions and industry, work-based learning has become a tool of choice in eliminating bottlenecks and has enabled conditions for further growth in innovative market segments.

In order to lastingly coordinate educational and skills requirements and to address skills shortage, higher education institutions, education and training providers and economic chambers from six countries have endeavoured to form an alliance in the application areas of water, wastewater, waste treatment and circular economy. The Alliance is about to be extended to 13 countries and to include 68 education and labour market players. In the long term, it will continue assuming the leadership role of a centre of competence on “eco-innovation”.

The partnership develops tools according to work-based learning principles that are piloted and evaluated: a training programme for strong learners in the initial vocational training, a program with six further vocational training courses, a train the trainer programme, an integration programme for the unemployed and a bachelor's degree programme with 4 modules. These programmes teach sector-specific skills in both environmental technologies and management. Furthermore, in three countries with predominantly school-based vocational training, dual education systems are introduced in initial, continuing and higher education.

All qualifications will be transferred to 11 project and 68 associated partners from 13 countries, who receive implementation advice. Extensive dissemination activities are carried out for free use of project outcomes by all interested parties.

2 Overview

Quality assurance, evaluation and monitoring of four areas:

- Educational measures
- Transfer processes and implementations
- Cooperation in the Skills Alliance and the Centre of Competence

- Quality assurance for the implementation of the project

Quality assurance and evaluation of educational measures occur in the Work Packages, in which qualification shall be developed, tested and implemented (WP 3 to 6). The uniform procedures, processes and instruments for the implementation of this work shall be described in Work Package 7 "Quality assurance". The results of quality assurance and evaluation shall be implemented directly into the individual educational measures. A comprehensive analysis of the evaluation of all educational measures shall occur in the context of Work Package 8 "Evaluations and assessments"

Quality assurance and evaluation of the transfer processes, implementations and cooperation as well as the entire project implementation shall occur in Work Packages 1 "Project Management", 3 "Implementation and realisation of Skills Alliance and establishment of Centre of Competence" and 9 "Dissemination and use of the project results". As the work for these three areas is closely linked, the survey and analysis of the data shall be performed using identical methods and generally uniform work processes. Therefore, the implementation of the work shall be described for the uniform procedure, approaches and mechanisms for all three areas in Work Package 7 "Quality assurance". Additionally, the results of the quality assurance and evaluation shall only be outlined for the transfer processes, implementation and cooperation for the three areas as well as the project implementation in WP 8 "Evaluations and assessments".

The following shall be outlined comprehensively:

- Methods and goals of evaluation
- Quality assurance and evaluation of educational measures
- Quality assurance and evaluation of transfer processes and implementations, cooperation in the Skills Alliance and the entire project implementation

3 Methods and goals of evaluation

Numerous evaluation methods and standards have been established on an international level. The comparison of applied methods shows that concerning the validity evaluation criteria play a significant role (cf. among others Widmer, Th., Evaluation: Ein systematisches Handbuch, Wiesbaden, 2009).

Depending on which criteria certain priority is assigned to, the evaluation results turn out correspondingly.

The same significance has the pragmatic direction. Therefore, the question: which goals have to be reached with the evaluation?

3.1 Goals

As a rule, the evaluation has the following goals:

1. It has to provide objectified knowledge about the progress (quantity and quality) of pro-cesses.
2. It serves the control of such processes and helps capturing the strong and the weak points. Therefore, it is an instrument of quality assurance.
3. It serves the legitimization. In other words, a successful evaluation is an evidence of competence of the person responsible for the process being evaluated.
4. Transparency, to make a dialogue possible.

In order to achieve these goals, the evaluation was performed in a process-related and summative manner: process-related (also formative, development-related) in order to evaluate the quality of the project progress and if necessary, to make changes. The summative evaluation or evaluation of results serves the evaluation of the specified objectives within the framework of the project, final evaluation of impact and efficiency of the project lecturers management, of cooperation and transfer.

3.2 Methods

As a rule, it is reasonable to use a combination of qualitative and quantitative instruments for evaluations: “If one wants to ensure the availability of statements concerning relevant pro-gram conditions and impacts through the framework of mutually reinforcing evidences so the multiple methodic access providers, in general, a more comprehensive and informative pic-ture than a monomethodic approach” (Brandtstädter, Jochen (1990): Development during the course of life. Approaches and problems of lifespan development psychology. In: Mayer, Karl Ulrich (Hg.): Life courses and social transformation (special issue of the Cologne magazine for sociology and social psychology. Opladen: Westdeutscher Verlag.).

Whereas for the analysis of process-related data (program control, execution etc.) first of all qualitative survey methods are suitable, for the verification of achievement of the goals, of impact and causal assessment quantitative survey and evaluation methods have to be im-plemented (Stockmann, Reinhard: Was ist eine gute Evaluation. Saarbrücken: Centrum für Evaluation, 2002. (CEval-Arbeitspapiere; 9).

Within the framework of evaluations, the most frequently used methods are:

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- Secondary analysis of available materials
- Guided interviews
- Standardized surveys or partly standardized surveys
- Case studies

Which methods are selected and implemented in particular depends on the central questions of evaluation discussed herein, therefore which goals and tasks are set, who performs the evaluation and which research paradigm must be the basis for this.

Within the framework of the present evaluation the mixed model – consolidation model – is implemented. According to the general description it means that first of all a quantitative survey/research is performed. The obtained data material is subsequently evaluated quantitatively, then it is followed by qualitative research method which is aimed at the consolidation of achieved results. So, it provides material for the interpretation of expected and unexpected effects and illustrates the results of quantitative studies on the basis of case examples.

Therefore, for the evaluation of the Master BSR project standardized as well as partly standardized surveys were used in the form of written questionnaires during planned and conducted partner workshops as well as an online survey. Complementary results were achieved after that with the help of guided interviews.

The secondary analysis of available materials was also included in the broadest sense, i. e. for the registration of framework data of the project the control instrument “Activity planning” and “Project application” were evaluated in order to capture project goals, terms and tasks of the project consortium and to take them into account during the implementation of separate evaluation steps and assessments.

4 Quality assurance and evaluation of educational measures

In the context of the project, the following educational measures shall be developed, tested, evaluated and implemented:

- ✓ In Work Package 3 Implementation and realisation of Skills Alliance and establishment of Center of Competence
- ✓ Train the Trainer Programme for consultants and teaching staff from chambers of commerce, organisations in the field of further education and higher education institutions

In Work Package 4 Implementation and realisation of initial vocational training

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- A Technologies water supply
- B Technologies water saving
- C Greywater and rainwater utilisation technologies
- D Technologies decentralised wastewater treatment
- E Fundamentals of the circular economy
- F Systemic solution-oriented consulting

In Work Package 5 Implementation and realisation of further vocational training

- A Preparation and management of SMEs for work in the Green Economy
- B Waste reduction and recycling management
- C Wastewater, treatment and recycling management
- D Water supply and saving
- E Cradle to Cradle in SMEs
- F Energy generation from wastewater and waste

In Work Package 6 Implementation and realisation of higher education

- A Management & Technologies of the Water and Wastewater industry
- B Waste Management & Technologies
- C Management & technologies of the circular economy
- D Management of sustainable economic activity

Quality assurance for all professional educational measures shall follow EQAVET. The development of curricula for study programme shall follow the guidelines of an official certification body.

Target groups and beneficiaries are SMEs, their owners, managers and specialists, youth and students. In order to completely understand their true requirements, representatives from SMEs as well as other target groups shall be engaged intensively. SMEs shall be included in technical discussions and practical testing as well as take part in workshops from the very beginning.

In order to cover differing national requirements, the educational measures developed as part of the project shall be tested in different countries through trials and evaluated scientifically using written participation surveys, interviews with participants, teachers and SMEs as well as accompanying observations.

Indicators include number of participants, distribution across industries, position in the company; satisfaction levels of the participants with lecturers, organisation, documents, etc.; assessments of the lecturers; evaluations of SMEs regarding practical relevance; results of examinations and project work.

4.1 Train the Trainer Programme

Partner 3 Vilnius Gediminas Technical University shall develop the concept, curriculum and any and all instructional materials for a Train the Trainer Programme from the competences of the cooperation in the Skills Alliance to the implementation of educational measures in the dual system by 30 April 2020.

A practical test of the Train the Trainer Programme shall occur on 17 and 18 June 2020 in Vilnius with at least 15 participants from 7 countries, namely the advisor and teaching staff of all project partners. An implementation report shall be created by 31 August 2020.

Partner 11 Satakunta University of Applied Sciences shall develop an evaluation concept including surveys, in-person interviews and accompanying observation and will conduct the evaluation of the trial by 30 November 2019. The revision and finalisation of the educational product as well as the development of instructions for use for the future shall be completed on the basis of the evaluation results by 31 August 2020.

A curriculum, teaching materials, implementation and evaluation report in the context of Work Package 3 (WP3) "Implementation and realisation of Skills Alliance and establishment of Centre of Competence" shall be outlined.

4.2 Training programme for strong (fast learning) learners in the initial vocational training

The project aims to promote work-based learning through the introduction of dual vocational training, especially in countries that have used school-based vocational training until this point in time. The German system of dual vocational training shall be added in order to evaluate and edit a description of Norway's dual vocational training. Training regulations, teaching plans and examination regulations shall be made available for the example of training plumbers and transferred to all project and associated partners as well as to politicians, administrators and stakeholders in 13 countries.

Fast-learning youth as well as persons who have performed well on midterm examinations can be allowed to shorten the normal length of the training time by up to one year. This reduction shall be restricted to six months; a second six-month reduction shall be used for the demonstration of competences in technology and management

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of waste, wastewater, water and circular economy. In a sense, this is advanced training undertaken during vocational training.

Additional qualifications can also be awarded during the regular training time or after the end of professional training independently of the possibility to shorten the training period.

With the awarding of additional qualifications

- a) Specialists should be educated, who already have deeper knowledge and competences in the environmental sector or obtain them directly after the vocational training.
- b) Fast-learning youths (i.e. with GSCEs or A-levels) from the successful completion of vocational training as they already achieve further education qualifications and have outstanding career chances in their professional lives.

The learning results are found under EQF Level 4. Additional competences and skills procured during vocational training (EQF Level 3) are predominantly transferable between occupations. Only individual modules are designed for specific occupations. The project shall be directly especially to youth who have successfully completed vocational training in one of the relevant professions, for example:

- Specialist in wastewater technology
- Specialist in circular economy and waste management
- Specialist in water supply technology
- System mechanic for sanitation, heating and air conditioning technology
- Gas and water installation technician
- Plumber

As with professional training, additional qualifications should be imparted preferably in the dual system. In addition, five main modules with the following scopes of training shall be developed:

A	Technologies in water supply	60 – 80 hours
B	Technologies in water saving	80 – 100 hours
C	Greywater and rainwater utilisation technologies	80 – 100 hours
D	Decentralised wastewater treatment technologies	100 – 120 hours
E	Fundamentals of the circular economy	80 – 100 hours
F	Systemic solution-oriented consulting	60 – 80 hours

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Curricula and teaching materials, which shall be tested and evaluated in different countries, shall be developed in the context of the project. In doing so, the development and finalisation work shall take into account differing national requirements so that use in different countries is strongly encouraged.

Training	Development of Curricula until 31.05.2020 by the following partners	Tests of the curricula in the period from 01.04.2020 to 31.05.2021 in the following countries by the following partners
A Technologies water supply with 60 – 80 lessons	Lead: PP6 Kontiki Cooperation: PP12 Wirtschaftsförderungs-Institut (WIFI)	In Lithuania by PP2 Panevėžys Chamber of Commerce, Industry and Crafts In Poland by PP7 Chamber of Craftmanship and Enterprise in Białystok
B Technologies water saving with 80 – 100 lessons	Lead: PP6 Kontiki Cooperation: PP12 Wirtschaftsförderungs-Institut (WIFI)	In Lithuania by PP4 Vilnius Builder Trainings Center In Poland by PP7 Chamber of Craftmanship and Enterprise in Białystok
C Greywater and rainwater utilisation technologies with 80 – 100 lessons	Lead: PP10 Nordic Forum of Crafts Cooperation: PP12 Wirtschaftsförderungs-Institut (WIFI)	In Lithuania by PP4 Vilnius Builder Trainings Center In Austria by PP12 Wirtschaftsförderungs-Institut (WIFI)
D Technologies decentralised wastewater treatment with 100 – 120 lessons	PP10 Nordic Forum of Crafts	In Norway by PP10 Nordic Forum of Crafts In Poland by PP7 Chamber of Craftmanship and Enterprise in Białystok

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E Fundamentals of the circular economy with 80 – 100 lessons	PP4 Vilnius Builder Trainings Center	In Lithuania by PP4 Vilnius Builder Trainings Center In Hungary by PP6 Kontiki
F Systemic solution- oriented consulting with 60 – 80 lessons	PP8 Białystok Foundation of Professional Training	In Lithuania by PP2 Panevėžys Chamber of Commerce, Industry and Crafts In Poland by PP7 Chamber of Craftmanship and Enterprise in Białystok
Evaluierung aller 5 Tests	PP11 Satakunta University of Applied Sciences Evaluierungs-Reports bis 30.06.2021	

For all six training courses the curricula, examination regulations, implementation and evaluation reports shall be outlined in the context of Work Package 4 "Implementation and realisation of initial vocational training".

4.3 Program with six further vocational training courses

Green competences for management and technologies in water, wastewater, waste and circular economy shall be imparted through six different further training programmes of study for persons with professional training and several years of professional experience. The individual training courses shall be oriented specifically for the needs of the "owner and management of SMEs" and "specialists of SMEs" target groups. The imparted teaching content is transferable between occupations. People from all professions as well as interested companies from all industries shall be approached. The learning results are found under EQF Levels 4 and 5.

Additional training courses can be added in order to offer an integration programme for the unemployed with appropriate pre-qualifications to improve their chances in the labour market.

The entire education and coaching programme includes:

- a) two to three blocks of classroom training in a training centre, in which owners, HR managers, managers and specialists take part;

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- b) one to two very long learning phases at workplaces in companies, in which all employees of the company participate at differing intensities;
- c) the implementation of a specific project for management and green economy technologies, which is determined and defined in the beginning of the first learning phase in the company. Learning occurs through accompanying daily work in the company as well as through the implementation of a development project;
- d) an individual training and coaching programme, which shall occur during the learning phases in the company with advisors or teaching staff.

Coaching especially concerns owners, HR managers, managers and employees in the coaching first line group.

The entire education and coaching programme occurs for approximately six months, depending on the teaching requirements and the complexity of the development project implemented.

- A Preparation and management of SMEs for work in the Green Economy
- B Waste reduction and recycling management
- C Wastewater, treatment and recycling management
- D Water supply and saving
- E Cradle to Cradle in SMEs
- F Energy generation from wastewater and waste

The curricula and teaching materials developed shall be tested and evaluated in different countries. In doing so, the development and finalisation work shall take into account differing national requirements so that use in different countries is strongly encouraged.

Further Training Course	Development of Curricula until 30.04.2020 by the following partners	Tests of the curricula in the period from 01.05.2020 to 30.04.2021 in the following countries by the following partners
A Preparation and management of SMEs for work in the Green Economy (45 h lessons)	Lead: PP6 Kontiki Cooperation: PP12 Wirtschaftsförderungs-Institut (WIFI)	In Lithuania by PP2 Panevėžys Chamber of Commerce, Industry and Crafts In Austria by PP12 Wirtschaftsförderungs-Institut

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+ self-learning and project work)		
B Waste reduction and recycling management (30 - 45 h lessons + self-learning and project work)	PP4 Vilnius Builder Trainings Center	In Lithuania by PP4 Vilnius Builder Trainings Center In Hungary by PP5 IPOSZ
C Wastewater, treatment and recycling management (30 - 45 h lessons + self-learning and project work)	PP10 Nordic Forum of Crafts	In Lithuania by PP2 Panevėžys Chamber of Commerce, Industry and Crafts In Hungary by PP5 IPOSZ
D Water supply and saving (30 - 45 h lessons + self-learning and project work)	PP12 Wirtschaftsförderungs-Institut (WIFI)	In Hungary by PP6 Kontiki In Austria by PP12 Wirtschaftsförderungs-Institut (WIFI)
E Cradle to Cradle in SMEs (30 - 45 h lessons + self-learning and project work)	PP1 Hanse-Parlament and Cooperation PP5 IPOSZ	In Hungary by PP5 IPOSZ In Hungary by PP6 Kontiki
F Energy generation from wastewater and waste (45 h lessons + self-learning and project work)	PP12 Wirtschaftsförderungs-Institut (WIFI)	In Hungary by PP5 IPOSZ In Austria by PP12 Wirtschaftsförderungs-Institut (WIFI)
Evaluation of all 5 tests	PP11 Satakunta University of Applied Sciences Evaluation reports until 31.05.2021	

The curricula, examination regulations, implementation and evaluation reports in the context of Work Package 5 "Implementation and realisation of further vocational training" shall be outlined for all six training courses.

4.4 Bachelor's degree programme with four modules

As part of the project, module handbooks for two dual bachelor programmes of study, which have been successfully implemented for several years in German in institutions of higher education, shall be edit:

- a) Management and Technology Energy Efficiency and Renewable Energies
- b) Management and Business for SMEs

Both programmes of study shall be transferred to institutions of higher education in 9 Baltic Sea countries. The recipients of the transfer shall receive counselling for the realisation of work-based learning through the implementation of dual programmes of study with institutions of higher education and SMEs.

In addition, students from technical and business programmes of study should learn green competences and small and medium business technology and management skills in water, wastewater, waste and circular economy. This arrangement shall occur in the dual system as the study modules at the universities are transferable between study programmes, while the training in companies are specific to professions and fields of activity. The learning results are found under EQF Level 6.

As part of the project, four main modules shall be developed, tested and evaluated, each of which includes between 150 and 175 teaching hours:

- A Management & Technologies of the Water and Wastewater industry
- B Waste Management & Technologies
- C Management & technologies of the circular economy
- D Management of sustainable economic activity

The four modules developed as part of the project shall be offered and taught at universities as part of pre-existing Bachelors studies as further optional modules or required modules or in the context of further training. As part of the project, Vilnius Gediminas Technical University shall develop concepts for integration of the modules in different dual programmes of study including the evaluation of theoretical and practice training parts by awarding credit points according to the pre-existing certified programmes of study and their examination regulations.

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Study modules	Development of Curricula until 31.05.2020 by the following partners	Tests of the curricula in the period from 01.04.2020 to 31.05.2021 in the following countries by the following partners
A Management & Technologies of the Water and Wastewater industry (180 – 200 lessons)	PP3 Vilnius Gediminas Technical University & Cooperation PP11 Satakunta University of Applied Sciences	In Lithuania by PP3 Vilnius Gediminas Technical University
B Waste Management & Technologies (180 – 200 lessons)	PP3 Vilnius Gediminas Technical University & Cooperation PP11 Satakunta University of Applied Sciences	In Lithuania by PP3 Vilnius Gediminas Technical University & parts PP11 Satakunta University of Applied Sciences
C Management & technologies of the circular economy (200 – 250 lessons)	PP3 Vilnius Gediminas Technical University & Cooperation PP11 Satakunta University of Applied Sciences	In Lithuania by PP3 Vilnius Gediminas Technical University & parts Satakunta University of Applied Sciences
D Management of sustainable <u>economic</u> activity (200 – 250 lessons)	Lead: PP11 Satakunta University of Applied Sciences Cooperation: PP12 Wirtschaftsförderungs-Institut (WIFI)	In Austria by PP12 Wirtschaftsförderungs-Institut (WIFI)
Evaluation of all tests	PP11 Satakunta University of Applied Sciences Evaluation reports until 30.06.2021	

Institutions of higher education implement specific R&D tasks for and with individual SMEs for specific aspects of management and green economy technology in the context of cooperation between institutions of higher education with SMEs. Requests and tasks come from the SMEs which participate in as the training partner for dual programmes of study or from other SMEs through arrangements with their chamber of commerce. The results are the property of each SME. They shall only be used in this context and only with the agreement of other interested parties. Research activities of institutions of higher education during editing of the SME specific R&D tasks shall be considered part of the daily work of the company. Therefore, the R&D requirements of the company shall be included within the development work of the universities.

All results from development, testing and evaluation of the four modules for Bachelor programmes of study as well as the implemented research and development work as part of Work Package 6 "Implementation and realisation of higher education" shall be outlined.

5 Quality assurance and evaluation of processes

Planning includes three areas of project implementation:

1. Processes of project implementation (see 5.2)
Quality assurance and evaluation of project management, partner meetings and further tasks in the context of Work Package 1 "Project Management".
2. Processes of Cooperation in the Skills Alliance as well as in the Centre of Competence (see 5.3)
Quality assurance and evaluation of the cooperation in the Skills Alliance and the Centre of Competence in Work Package 3 "Implementation and realisation of Skills Alliance and establishment of Centre of Competence between
 - a) all project and associated partners
 - b) institutions of higher education as well as SMEs and chambers of commerce
 - c) the SME target groups and representatives to be included from the target groups.
3. Processes of Transfer and Implementation (see 5.4)
Quality assurance and evaluation of written and personnel transfer, individual implementation counselling as well as additional measures for distributing the project results in the Work Package "Dissemination and use of project results".

As the planning and control mechanisms as well as the data collection and evaluation are identical for all three areas, the relevant planning that follows shall be the same for all.

Concerning the evaluation criteria which must be used in relation to the evaluated processes the opinions in the scientific literature diverge strongly. Often it is recommended to use checklists which contain up to 100 and more criteria according to which the processes can be evaluated.

To ensure the practicability of the evaluation but nevertheless to assess the results thoroughly the evaluation of the project implementation concentrated on four criteria.

1. The quality and the efficiency of management
2. The communication and the cooperation in the project consortium and in the Knowledge Alliance
3. The involvement of transfer recipients and success of transfer activities
4. The expected benefits of implementation of products developed within the framework of the project

According to international experiences with evaluations which are available first of all in the English-speaking countries a holistic (integral) evaluation of processes should have the priority.

During the evaluation of the registered data the focus was on the following criteria:

- a) How do project partners assess the cooperation in consortium and the project management of the Lead Partner?
- b) Have the expectations of the project partners been met?
- c) Did the management meet the requirements?
- d) How do transfer recipients assess their involvement and the transfer activities?
- e) What benefits do the developed products have for the project partners and the transfer recipients?

5.1 Planning and control mechanisms

The project uses four central planning and control mechanisms:

1. A binding agreement with
 - foundations of implementation
 - responsibilities and consequences of non-compliance
 - detailed description of goals, activities and envisaged results
 - tasks, obligations and budgets for each partner

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- binding rules of management and accounting statements
- uniform paperwork for work reports, registration of working times etc.

The agreement shall be developed by the Lead Partner at a workshop with input and votes from all partners and agreement from the Lead Partner and each individual projected partner by 28 February 2019.

2. A differentiated activity plan which sets out individual work steps, tasks, events, etc., until the end of the project
 - responsible and contributing partners
 - deadlines for implementation and execution
 - goals and expected results
 - all tests and implementation
 - quantity structures and quality criteria

This plan shall be created by the Lead Partner at a workshop along with all partners, who advise, vote on and adhere to a binding agreement. Therein after, the activity plan from the Lead Partner shall be monitored, updated and discussed at bi-annual workshops with all partners.

3. On the basis of a uniform foundation, each partner shall vote on a communication and dissemination plan from the Lead Partner with target groups, deadlines, indicators, obligations, dissemination measures etc.

An initial plan shall be created by all partners by 30 September 2019.

An initial record of all measures implemented and an update to the plan shall be created by all partners by 31 November 2020.

The final record of all measures implemented shall be created by all partners by 31 December 2021.

The communication and dissemination plan shall also be discussed at bi-annual workshops.

4. The Lead Partner shall develop a separate project accounting plan with sub-budgets for each partner and financial specifications for tasks undertaken. For this purpose, money for the expenses shall be reserved. The partners shall only receive payment when the agreed upon task has been completed and all receipts have been submitted.

The activity and dissemination plan as well as accounting are the central control and monitoring instruments with regards to achieving project goals, implementation of all activities, compliance with all deadlines, cost-effective implementation and financial development. Monitoring and accounting shall be run by an experienced employee of

the Lead Partner, who is responsible for compliance with all requirements, assessments of invitations for tenders, cost efficiency, etc. In addition, the Lead Partner shall create an external tax consultancy office for monitoring and evaluation, which is also responsible for compliance with all requirements, fiscal accounts and cost efficiency. Planning and monitoring results shall be consulted at meetings where all partners are present. Large savings, greater cost efficiency, faithfulness to goals and deadlines and attaining greater quality shall be ensured with this approach.

5.2 Project Management

Partner 1 Hanse-Parlament shall be responsible for overall project management, which includes:

- Creation, coordination and completion of a partner agreement
- Creation and coordination of a differentiated activity plan for the entirety of the project period
- Development and coordination of a communication and dissemination programme with each partner
- Creation and continual implementation of separate project accounting
- Bi-annual activity report and statements with all receipts from all partners
- Continual administrative and financial project management
- Creation and publication of 2 newsletters yearly

Securing of communication and intensive bilateral exchange between the Lead Partner and project and associated partners

- Preparation, management and follow-up of at least six workshops with all project partners
- Preparation, management and follow-up of an international counselling and transfer conference
- Creation of mid- and final reports with project accounting

In addition to the data, results, etc. that result from the central planning and control mechanisms (see 5.1), the following sources of data shall also be used for the evaluation of project management:

- Written evaluation of each partner workshop
- Reoccurring, anonymous electronic survey of project and associated partners
- Comprehensive personal interviews with project and associated partners using external experts

The results of the evaluation shall be reviewed with all partners through workshops and used in additional projects, resulting in a continuous improvement process. A comprehensive project management evaluation report shall be created by Partner 1 Hanse-Parlament.

5.3 Skills Alliance and Centre of Competence

The regular works for operation, strengthening and expansion of the Skills Alliance “Management and Technologies of Water, Waste Water, Waste and Circular Economy (WWW&CE)” shall occur in cooperation with the development of the qualification measures (Work Packages 4 to 6) as well as with the activity for dissemination and use of the project results (Work Package 9). Overall tasks and specifics about the development work and operation of the Centre of Competence “WWW&CE” are outlined in Work Package 3.

- a) Creation of a Skills “WWW&CE” with 11 partners from 7 countries
 - Start: 01 February 2019
 - Report: 31 October 2021
- b) Development of information, communication and cooperation mechanisms and procedures for cooperation within the Knowledge Alliance
 - Responsible: Partner 1 Hanse-Parlament
 - Implementation by 30 September 2019
- c) Information and acquisition of further partners
 - Responsible: Partner 1 Hanse-Parlament
 - Report: 31 May 2020
- d) Development, consultation and coordination concept of Centre of Competence “WWW&CE”
 - Responsible: Partner 1 Hanse-Parlament
 - Report: 31 October 2020
- e) Acquiring universities as partners for the CoC and developing a coordinated division of work
 - Responsible: Partner 1 Hanse-Parlament
 - Report: 30 June 2021
- f) Development and coordination of organizational and working forms of the CoC
 - Responsible: Partner 1 Hanse-Parlament
 - Report: 30 June 2021
- g) Development and coordination of a management and business plan for the CoC

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- Responsible: Partner 1 Hanse-Parlament
- Report: 30 September 2021

h) Foundation and employment CoC

- Responsible: Partner 1 Hanse-Parlament
- Report: 30 November 2021

In addition to data, results, etc., that shall be obtained from the central planning and control mechanisms (see 5.1), the following data sources shall be used for the evaluation of the development and cooperation within the Knowledge Alliance and the Centre of Competence:

- Reoccurring, anonymous electronic survey of the project, alliance and associated partners
- Comprehensive personal interviews with project, alliance and associated partners using external experts

The results of the evaluation shall be reviewed with all partners through workshops and used in additional projects, resulting in a continuous improvement process.

By the end of the project, a comprehensive evaluation report of the cooperation within the Knowledge Alliance and the Centre of Competence shall be created by Partner 1 Hanse-Parlament.

5.4 Transfer, implementation and dissemination

1. Development and agreement of a communication and dissemination plan individually for each partner with separate activities including transfer, counselling and further dissemination, target groups, deadlines, etc. (see 5.1)
2. Preparation of concepts, curricula, teaching materials and instructions for use for all educational and other measures developed as part of the programme as well as paper and electronic transfers for all direct and associated project partners from 13 countries as well as additional education institutions and stakeholders
 - Responsible: Partner 1 Hanse-Parlament
3. Individual implementation consulting for project and associated project partners from 13 countries as well as additional education institutions
 - Responsible: Partner 1 Hanse-Parlament
4. Creation of a book for all results of the project and distribution through a publisher

Management and Technologies of Water, Waste Water, Waste and Circular Economy
WWW&CE

- Responsible: Partner 1 Hanse-Parlament
- Publication by 30 November 2021

5. Implementation of measures for further dissemination

- Responsible: Partner 1 Hanse-Parlament with the involvement of all other partners
- Complete results, materials, etc., shall be made available in three Internet platforms accessible to the public as well as on the websites of the project partners
- The project results and its uses shall be reported intensively in at least three press conferences and at least six press releases.
- Ongoing information for all project and associated partners on their own platforms and in member journals
- Project and associated partners introduce the results of the project into the political decision-making processes of their daily business with special support of work-based learning
- The project results, possibilities of use, etc. shall be presented in person to at least 18 third-party institutions, including universities and business forums, in different countries
- Partner 1 Baltic Sea Academy is an international organisation in numerous political committees and shall inform them about project goals and results, in order to further promote their inclusion in political decision-making processes.

In addition to the data, results, etc. that result from the central planning and control mechanisms (see 5.1), the following sources of data shall also be used for the evaluation of transfer, implementation and deployment:

- Reoccurring, anonymous electronic survey of project and associated partners
- Comprehensive personal interviews with project and associated partners using external experts

The results of the evaluation shall be reviewed with all partners through workshops and used in additional projects, resulting in a continuous improvement process. A comprehensive transfer, implementation and deployment evaluation report shall be created by Partner 1 Hanse-Parlament.

Evaluierungskonzepte

WP3 Evaluation concept Train the Trainer

WP3 Skills-Alliance Evaluation Concept

WP4 Evaluation concept_Vocational Training

WP5 Evaluation concept_Further vocational
Training

WP6 Evaluation concept_Studies Proigramms



Train the trainer

Evaluation concept WP3

Satakunta University of Applied Sciences (SAMK), project partner number 11

Compiled by Dr Kari Lilja and Dr Sirpa Sandelin

Introduction

Evaluating the training, teaching and learning has been an emerging issue in the 1980's when it was actively researched within several disciplines like education, pedagogics, psychology and organizational sciences. During the 1990's the enthusiasm flagged, but the interest woke up again in parallel with the waves of refugees and immigrants arriving to the Europe. The needs to include newcomers to the hosting society, to teach local culture, habits and language, and to train professional skills to comply with the local requirements have highlighted the importance of developing new teaching and training methods. These new methods and tools in teaching and training should be compatible with the requirements set by cultural diversity of both the refugees and immigrants, and the societies more or less voluntary receiving the incomers.

Furthermore, during the past two decades the western countries have met - in addition to enormous flood of settlers - another phenomenon that challenges the education system: The post-war baby boom generation reaches age of retirement. This has two consequences, both requiring the answers from school systems. Firstly, the western countries should have a capability and capacity to educate and train more and more nursing personnel to cover both the vacuum left by those retiring, and to answer to the needs of ageing population. Secondly, these countries should be capable to renew their education systems to be able to satisfy the needs of business, to be able to train skilled labor and to be able to educate more persons that are both capable and willing to create their career as entrepreneurs and to continue the work of retiring entrepreneurs. If this fails, the consequences for European economy might be fatal or even disastrous.

This challenges not only schools and universities or teachers and trainees, but also those developing the courses and teaching and training methods used in the courses. Evaluating the learning of trainees, used methods and the impact of these methods on the learning would help teachers, designers and analysts to improve the methods.

The aims and targets of the evaluation are context dependent issues. Thus, in ideal world, the courses, the methods used in the courses and the means to evaluate the outcome of the course, the learning of trainees and the efficacy and success of the methods should be designed together so that the whole course is seen as main process inside which the training and evaluation are parallel subprocesses. This would be the best way to ensure that exactly those goals set to this unique program are measured during the evaluation. In this case "Train the Trainer" has been planned partially parallel with the planning of the evaluation.

Education Program

"Train the Trainer" (WP3),

- Program for instructors of vocational trainings and teachers in higher education. The aim is to constantly provide a sufficient number of qualified teachers who are able to
 - a) Conduct dual initial and vocational training as well as higher education in an appropriate manner, and
 - b) Apply the pedagogical approach and coaching technique of the KAIN method.

This program has been developed to respond the challenges met by those aiming to strengthen the awareness and competences for target-oriented environmental policy and workplace innovations in SMEs via training and consulting the entrepreneurs and personnel of SMEs. The trainers, consultants and coaches should be able to support companies in the development of their environmental policy as well as in workplace innovations in the framework of the circular economy through consulting and qualifying support.

The target groups of the program are teachers of vocational schools, trainers in SMEs and lecturers in continuing and higher education.

The planned duration of course may vary depending to the educational level and purposes. Each lesson lasts 45 minutes. Methods used in lessons will be lectures, teaching talks, working in small groups, case studies and examples from real world. Material used during the teaching consists of e.g. information material (basics & backgrounds, thematic introductions etc.), presentations, questionnaires, question

guides, checklists, analysis results, good practice examples and so on. Course should contain at least following issues:

1. Basics/overview of essential tasks and contents of business-oriented and productivity-enhancing measures in circular economy and workplace innovation
2. What is and how to apply with the KAIN-method (Knowledge Acquisition according to Individual Needs) (In the train the trainer –training).
3. Attitudes and behavior in consulting processes
4. Supporting activities by WWW&CE / Centres of Competence

Evaluation of course including gained results and found problems is essential to be able to develop further the existing training programs as well as to consider the experiences gathered from these programs when building new curricula. The evaluation process has been designed hand in hand with the courses themselves. This concept presents an overview of evaluation process and questionnaire.

When evaluating course, the goals and real results should be compared. This is not always possible or fair and just. The evaluation should be targeted only to such measurable issues on which the designer, teacher, facilitator or student himself has an impact. Evaluating the impacts of training programs against the presented main goals would require large societal researches including the recording of the initial situation before starting the programs and the long-term follow-up research in which the conducted interventions and actions (In this case new forms of training and education) and their impacts on change of variables is followed (Figure 1). The final conclusions can be drawn just after some years or after decades. In this project this is not possible and the whole evaluation process must be rethought and simplified.

The most important variables, on point of view of achieving the goals set, are the motivation of student, the support he gets, the relevance of issues in curricula, the quality material and training and the ability of facilities to support training and learning. Although most of the variables presented above are so called soft variables, which can't be measured directly by targeting the measurement tool to some point or phase in the process, they can be assessed indirectly by assessing the feelings and comments of participants and other stakeholders.

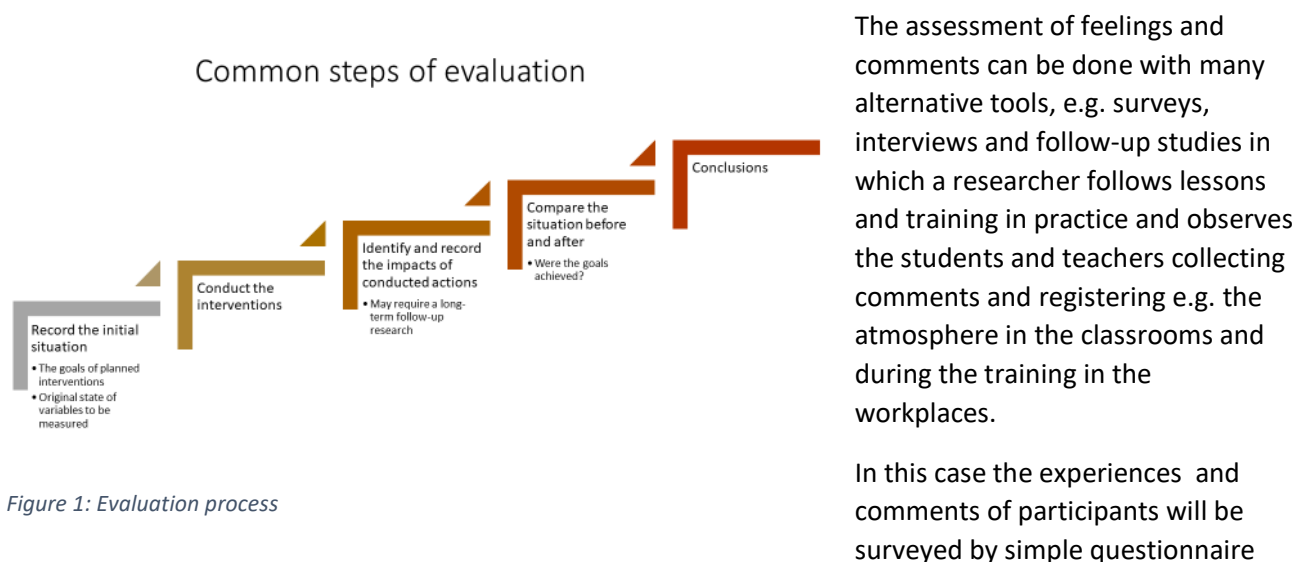


Figure 1: Evaluation process

with questions approaching the common impressions, the applicability of facilities, the relevancy and importance of each issue and the experienced quality of each lesson and material used.

Evaluation concept

The objective of the evaluation is to determine whether the goals of the program will be achieved in the implementations evaluated, and how the program has impact on student's career and opportunities.

The type of the evaluation follows standard course evaluation methods, i.e. formative, process and outcome evaluation, the latter only partial:

- The formative evaluation will provide feedback to the curriculum designers, developers and implementers to ensure that designed and implemented courses really meets the needs of the intended audience, i.e. assure or improve the quality of program. Formative evaluation and analyses will answer to the following questions:
 - Were the goals and objectives suitable for the audience?
 - Were the training methods and course materials appropriate for the audience?
 - Should the program or some part of it be developed further and if, how?
 - Furthermore, formative evaluation also provides information that benefits the development of the program, facilities and timing.
- The process evaluation will provide information concerning the training and lectures, like asked questions and verbal feedbacks.
 - Process evaluation answers the question “What did you do?”
 - It focuses on procedures and actions used to produce results.
 - Process evaluation takes place during the training delivery and at the end of the training.
 - The co-organizer (Responsible for the course)
 - monitors the training,
 - describes the training process as a whole, and
 - records the findings into the written report.
- The outcome evaluation tries to find out how the knowledge, attitudes, and behaviors of the audience developed. It takes a long time to find out the outcomes of the education and training, so in this stage only the main topics participants are able to do at the end of training, will be assessed.

The evaluation process will be as follows:

1. Semi-structured questionnaires will be created for the participants (Appendix A): The topics (topic 1, topic 2...) **should be renamed to match to the parts of the course**. It is also recommended that co-organizer (Responsible for the course) writes the name and place of the evaluated course in the beginning of the questionnaire before printing it to make sure that the name is correct. If the questionnaire needs to be compiled to e.g. German, the co-organizer takes care of this.
2. Time for the survey (approx. 15 minutes) will be allocated in the end of the course
3. In the beginning of the course the co-organizer (Responsible for the course) will inform participants about the evaluation and its importance for further development actions
4. The co-organizer (Responsible for the course) distributes the questionnaires to the participants to be filled in before leaving the course. The purposes of the questionnaire and how the data will be used should be explained clearly to the participants. This will help to improve the response rate and encourage them to make comments that can be useful to improve future programs.
5. The participants complete the questionnaires and return them to the co-organizer.
6. The co-organizer collects the questionnaires and deliver them to the evaluator. If there are free speech answers in some other language than English, it is recommendable that the co-organizer translates them to English.
7. The evaluator compiles all feedbacks and summarizes written analysis on the evaluations.

The evaluation approach will be based on a combination of qualitative and quantitative methods. The Microsoft Excel package will be used to transcribe the feedbacks and interviews. Open questions will be categorized, and qualitative analysis of the groups will be done.

The final evaluation report will discuss the following issues:

- Did the curriculum reach the targets?
- How well was the knowledge creation and sharing realized?
- Did the participants assimilate knowledge and tools?
- Was the venue and equipment appropriate for the training course?

- What kind of further development will be needed, if any?

Schedule of the evaluations

The schedule of the evaluation should be matched to the phases of the curriculum. There is no sense to evaluate the course before the students have a true and fair view of the course, its phases and contents. Thus, the survey will be conducted in the end of the course. A closer schedule of evaluation will be agreed later. However, the material (completed questionnaires) should be sent to evaluator (SAMK) latest three weeks before the deadline of the report, which is 30. November 2020.

Appendix A: Questionnaire for participants of the _____-course

Please circle the scale that applies to your opinion on the following aspects of the Train the Trainer – training you participated.

Scale: 1= Strongly disagree, 2=Disagree, 3=Neither disagree or agree, 4=Agree, 5=Strongly agree

In common						
The facilitation (location, room etc.) was suitable for training		1	2	3	4	5
The topics and issues were relevant and responded to the goals of training		1	2	3	4	5
The lecturers explained topics of the lessons, additional questions, experiences, and topical issues arisen during the course well		1	2	3	4	5
There were enough time scheduled for each issue.		1	2	3	4	5
I got valuable knowledge from lessons and examples presented by lecturers.		1	2	3	4	5
I believe that can utilize the knowledge gained from lessons in my future career.		1	2	3	4	5
I can utilize the skills trained and knowledge gained in my future career, e.g. when consulting my clients.		1	2	3	4	5
Comments concerning the common issues						
Lessons and Topics						
Topic 1	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 2	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 3	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 4	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5

Topic 5	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 6	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 7	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 8	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 9	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Free speech						
What was good?						
What could have been done better? (E.g. was some topic missing or unnecessary)						
Would you recommend the course to someone you know? If not, why not?						
Was anything missing that you might need in your future profession / occupation / job?						
Was the proportion of topics and issues inside each topic suitable or should something be increased / decreased?						
Other comments						

Thank you for your answer

Skills Alliance

Evaluation Concept

Satakunta University of Applied Sciences (SAMK), project partner number 11

Compiled by Dr Kari Lilja and Dr Sirpa Sandelin

Skills alliance

The majority of all companies in EU are SME-enterprises, employing up to 70 percent of all employees. These SMEs may have stable growth prospects, but despite of that, they are well positioned to solve pending environmental issues, and, thus, having an opportunity to grow in the sector of Green Economy. Nowadays, main barrier to growth are inadequate skills across most sectors of the economy. At the same time, job vacancies in SME and overall unemployment and, in particular, youth unemployment, are steadily rising. In cooperation between educational institutions and industry, work-based learning has been developed as a tool in eliminating bottlenecks. Work-based learning has created opportunities for further growth in innovative market segments.

To be able to coordinate educational and skills requirements and to address skills shortage, higher education institutions, institutions providing education and training and economic chambers from six countries have formed an Alliance in the branches of water, wastewater, waste treatment and circular economy. The Alliance will be extended to 13 countries and it will include 68 education and labor market players. In the long term, it will take the leading role as a center of competence in the branch of “eco-innovations”.

The alliance shall develop following tools, implement and evaluate them:

- training program for strong learners in initial vocational training - 6 courses
- program of 6 further vocational training courses
- train-the-trainer program
- integrative program for unemployed clients
- Bachelor's degree program with 4 modules

These programs are conveying sector-specific skills in environmental technologies and management. Furthermore, three countries with predominantly school-based vocational training, will introduce dual education systems for initial, advanced and higher education.

All qualifications will be transferred to 11 project partners and 68 associated partners from 13 countries, who receive the implementation advice. To guarantee the free use of project outcomes by all interested parties, extensive dissemination activities are carried out.

Overview of Skills Alliance

Skills Alliance "Management and Technologies of Water, Wastewater, Waste and Circular Economy" (WWW&CE) (further on: Alliance) with project partners from Austria, Finland, Germany, Hungary, Lithuania, Norway and Poland and with relevant actors, e. g. chambers of commerce, industry and crafts, vocational training institutions, universities, public institutions etc., has been founded at the beginning of the project. The alliance will be expanded to include relevant institutions. It will be systematic built up and developed further.

Partner 1, Hanse Parlament, develops and coordinates the Alliance in cooperation with the project partners. Furthermore, Hanse Parlament develops and implements guidelines and tools for cooperation, and information dissemination, etc. The Alliance meets regularly and accompanies the entire project implementation as an advisor. The individual members shall take part in project workshops and conferences. Various members of the Alliance will be involved in certain project tasks.

The Lead Partner (LP) develops and ensures cross-border exchange of experience and information as well as cooperation. The LP also involves and informs the 68 transfer recipients and implementation partners from 13 countries who participate as associated partners in the implementation of the project.

By the end of the project, a BSR-wide competence center "Eco Innovation", which will incorporate and continue the work of the Alliance, will be established. The following activities will be realized in this context:

- Development and coordination of the concept for the Center of Competence (CoC) "Management and Technologies of Water, Wastewater, Waste and Circular Economy" (WWW&CE)

- Acquisition of universities as CoC partners
- Development and coordination of CoC organizational and working methods in cooperation with chambers and vocational training providers
- Development and coordination of management and business Plan of the CoC
- Establishment and start CoC activities

Individual Activities of the Skills Alliance

- Establishment
 - A Skills Alliance "Management and Technologies of Water, Wastewater, Waste and Circular Economy" (WWW&CE) will be established with various actors, some of whom are already involved in the project as associated partners. Start: 01.02.2019
- Additions and Expansion
 - During the project period, the Alliance will be expanded, and further relevant actors will be recruited so that 60 - 70 institutions will participate in the Alliance. Implementation report: 31.05.2020
- Cooperation and Information
 - Systematic development of Alliance as well as development and use of information and cooperation tools. Start: 01.02.2019; Implementation report: 30.09.2019
- Participation in the Project
 - Accompaniment of project implementation by the Alliance and participation of individual members in work packages 2 – 9.
- International Cooperation
 - Under the leadership of Partner 1 Hanse Parlament, which ensures the cross-border exchange of information and experience as well as cooperation with 68 associated partners from 13 countries. Report: 31.05.2020
- Development Center of Competence
 - Further development of the Alliance into a BSR-wide Center of Competence (CoC) "Eco Innovation", which promotes long-term cooperation between educational and economic players, develops and implements qualifications and works on R&D tasks. Implementation report: 30.11.2021

Evaluation

Considering the alliances, it is very seldom possible to evaluate the results or outcomes of the alliance because the activities are long-term and their impacts are spreading on wide range of stakeholders in the society. Thus, the evaluation must be targeted to issues the success is based to. These are the participants of the alliance, their motivation, knowledge and skills as well as their capability and willingness to co-operate, without forgetting the resources available and support given by PP1 and other participants.

These properties will be collected by a structured questionnaire (Appendix A). The questionnaire will be sent to each participant by PP1 in the end of 2020. Questionnaire should be completed, either by computer (MS Word) or by pen, and returned to the sender (PP1) who makes sure that all the participants have completed the questionnaire, and after that forwards the answers to be analyzed by PP SAMK. Samk will conduct the analyses and write a report including the conclusions and recommendations.



Conducting the survey

PP1 sends the questionnaire to participants latest on 31. December 2020
Participants complete the questionnaire and return it to the PP1 latest on 28.2.2021



Analyzing phase

PP1 collects the questionnaires, checks that all participants have answered and sends the data to SAMK latest on 31.3.2021
SAMK will analyse the results and write the preliminary report latest on 31.5.2021



Report and recommendations

SAMK will write the final report and recommendations latest on 31.8.2021

Appendix A: Questions

Give the name of organization / institution [Click or tap here to enter text.](#)

What kind of institution / organization do you represent?

- A. ☐ National government / Ministry / Department
- B. ☐ National public agency
- C. ☐ Regional government / Ministry / Department
- D. ☐ Regional public agency
- E. ☐ Public research institute
- F. ☐ Private research institute
- G. ☐ Vocational Education Institution
- H. ☐ Higher Education Institution
- I. ☐ Chamber of Commerce and Industry
- J. ☐ Chamber of Crafts
- K. ☐ Cluster organisation
- L. ☐ International organization
- M. ☐ Not-for-profit organization / foundation
- N. ☐ Other (please specify): [Click or tap here to enter text.](#)

What discipline / knowledge / skills are your top know-how in the alliance? [Click or tap here to enter text.](#)

Do you think all the relevant participants are involved into the alliance? Yes ☐ / No ☐. If no, who do you think is missing? [Click or tap here to enter text.](#)

Do you think there are enough tools for co-operation and dissemination? Yes ☐ / No ☐. If no, name one missing tool. [Click or tap here to enter text.](#)

Do you think there are too few ☐ enough ☐ or too much ☐ meetings within a year? Optional: How many meetings per year, according to your opinion, would be suitable frequency? [Click or tap here to enter text.](#)

Do you think you have been able to give your full contribution to tasks you are involved? Yes ☐ / No ☐. If no, why? [Click or tap here to enter text.](#)

Are the tasks too easy / simple ☐ ; suitable ☐ ; or too difficult / complicated ☐ for you? Further information [Click or tap here to enter text.](#)

Have you got resources enough to complete the tasks? Yes ☐ / No ☐. If No, what was missing? [Click or tap here to enter text.](#)

Are the tasks done according to the schedule? Yes ☐ / No ☐ If no, what according to your opinion are the main reasons for delays? [Click or tap here to enter text.](#)

Are the goals of the Alliance clear enough? Yes ☐ / No ☐. If no, what should be clarified? [Click or tap here to enter text.](#)

Have you got enough information concerning the

- Goals of the alliance? Yes ☐ / No ☐ .
- Your role in the alliance? Yes ☐ / No ☐ .
- The other participants' roles in the alliance? Yes ☐ / No ☐ .

How would you evaluate the overall grade of the Alliance (scale from 1 to 5, 1 = very poor, 5=excellent) [Click or tap here to enter text.](#)

By the end of the project, a BSR-wide competence centre "Eco Innovation" will be established, which will incorporate and continue the work of the Alliance. Do you / does your organization have any interest in

being involved with this competence centre? Yes ☐ / No ☐ . Further information (Please specify) [Click or tap here to enter text.](#)

Is there any needs to change the structure or concept of alliance? Yes ☐ / No ☐ . Please specify: [Click or tap here to enter text.](#)

Free speech: [Click or tap here to enter text.](#)

Thank you for your answer

Initial vocational training

Evaluation concept WP4

Satakunta University of Applied Sciences (SAMK), project partner number 11

Compiled by Dr Kari Lilja and Dr Sirpa Sandelin

Introduction

Evaluating the training, teaching and learning has been an emerging issue in the 1980's when it was actively researched within several disciplines like education, pedagogics, psychology and organizational sciences. During the 1990's the enthusiasm flagged, but the interest woke up again in parallel with the waves of refugees and immigrants arriving to the Europe. The needs to include newcomers to the hosting society, to teach local culture, habits and language, and to train professional skills to comply with the local requirements have highlighted the importance of developing new teaching and training methods. These new methods and tools in teaching and training should be compatible with the requirements set by cultural diversity of both the refugees and immigrants, and the societies more or less voluntary receiving the incomers.

Furthermore, during the past two decades the western countries have met - in addition to enormous flood of settlers - another phenomenon that challenges the education system: The post-war baby boom generation reaches age of retirement. This has two consequences, both requiring the answers from school systems. Firstly, the western countries should have a capability and capacity to educate and train more and more nursing personnel to cover both the vacuum left by those retiring, and to answer to the needs of ageing population. Secondly, these countries should be capable to renew their education systems to be able to satisfy the needs of business, to be able to train skilled labor and to be able to educate more persons that are both capable and willing to create their career as entrepreneurs and to continue the work of retiring entrepreneurs. If this fails, the consequences for European economy might be fatal or even disastrous.

This challenges not only schools and universities or teachers and trainees, but also those developing the courses and teaching and training methods used in the courses. Evaluating the learning of trainees, used methods and the impact of these methods on the learning would help teachers, designers and analysts to improve the methods.

The aims and targets of the evaluation are context dependent issues. Thus, in ideal world, the courses, the methods used in the courses and the means to evaluate the outcome of the course, the learning of trainees and the efficacy and success of the methods should be designed together so that the whole course is seen as main process inside which the training and evaluation are parallel subprocesses. This would be the best way to ensure that exactly those goals set to this unique program are measured during the evaluation. In this case "Train the Trainer" and other education programs have been planned parallel with the planning of the evaluation.

Education Program

Initial vocational training (WP4),

- Program for the provision of sector-specific qualifications already during the initial vocational training for stronger learners (EQF levels 3 and 4).
- Implementation in the dual system, so that work-based learning is put into practice.

This program has been developed to respond the challenges met by those aiming to strengthen the awareness and competences for target-oriented environmental policy and workplace innovations in SMEs via training and consulting the entrepreneurs and personnel of SMEs. The students should be able to support companies in the development of their environmental policy as well as in workplace innovations in the framework of the circular economy through consulting and qualifying support.

The following should be achieved:

- a) Attraction of much needed junior staff for SMEs.
- b) Development of capacities to increase awareness for Workplace Innovations.
- c) Realization of individual Workplace Innovation projects, which the students carry out as employees of the participating SMEs with the support of professors of the respective university in connection with the dual studies in SMEs.

The target group of the program is young people in vocational training as well as students in educational institutes, vocational schools and universities (of applied sciences) with capabilities and interest to rise in their career.

The planned duration of course varies depending to the educational level and purposes. Each lesson lasts 45 minutes. Methods used in lessons will be lectures, teaching talks, working in small groups, case studies and examples from real world. Material used during the teaching consists of e.g. information material (basics & backgrounds, thematic introductions etc.), presentations, questionnaires, question guides, checklists, analysis results, good practice examples and so on. Course should contain at least following issues: Basics/overview of essential tasks and contents of business-oriented and productivity-enhancing measures in circular economy and workplace innovation (in each of the courses)

The SME-specific training course should contain following topics (overview):

- a. The initial vocational training with one of the six courses:
 - A. Technologies in water supply
 - B. Technologies in water saving
 - C. Greywater and rainwater utilization technologies
 - D. Decentralized wastewater treatment technologies
 - E. Fundamentals of the circular economy
 - F. Systemic solution-oriented consulting
- b. Attitudes and behavior in consulting processes
- c. Supporting activities by WWW&CE / Centres of Competence

Evaluation of courses including gained results and found problems is essential to be able to develop further the existing training programs as well as to consider the experiences gathered from these programs when building new curricula. The evaluation process has been designed hand in hand with the courses themselves. This concept presents an overview of evaluation process and questionnaire.

When evaluating course, the goals and real results should be compared. This is not always possible or fair and just. The evaluation should be targeted only to such measurable issues on which the designer, teacher, facilitator or student himself has an impact. Evaluating the impacts of training programs against the presented main goals would require large societal researches including the recording of the initial situation before starting the programs and the long-term follow-up research in which the conducted interventions and actions (In this case new forms of training and education) and their impacts on change of variables is followed (Figure 1). The final conclusions can be drawn just after some years or after decades. In this project this is not possible and the whole evaluation process must be rethought and simplified.

The most important variables, on point of view of achieving the goals set, are the motivation of student, the support he gets, the relevance of issues in curricula, the quality material and training and the ability of facilities to support training and learning. Although most of the variables presented above are so called soft variables, which can't be measured directly by targeting the measurement tool to some point or phase in the process, they can be assessed indirectly by assessing the feelings and comments of participants and other stakeholders.

Common steps of evaluation

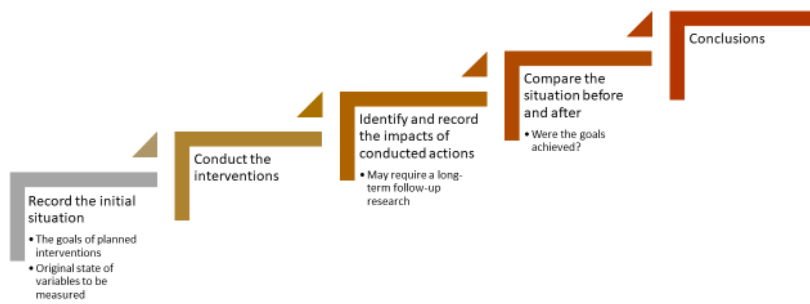


Figure 1: Evaluation process

The assessment of feelings and comments can be done with many alternative tools, e.g. surveys, interviews and follow-up studies in which a researcher follows lessons and training in practice and observes the students and teachers collecting comments and registering e.g. the atmosphere in the classrooms and during the training in the workplaces.

In this case the experiences and comments of participants will be surveyed by simple questionnaire

with questions approaching the common impressions, the applicability of facilities, the relevancy and importance of each issue and the experienced quality of each lesson and material used.

Evaluation concept

The objective of the evaluation is to determine whether the goals of the program will be achieved in the implementations evaluated, and how the program has impact on student's career and opportunities.

The type of the evaluation follows standard course evaluation methods, i.e. formative, process and outcome evaluation, the latter only partial:

- The formative evaluation will provide feedback to the curriculum designers, developers and implementers to ensure that designed and implemented courses really meets the needs of the intended audience, i.e. assure or improve the quality of program. Formative evaluation and analyses will answer to the following questions:
 - Were the goals and objectives suitable for the audience?
 - Were the training methods and course materials appropriate for the audience?
 - Should the program or some part of it be developed further and if, how?
 - Furthermore, formative evaluation also provides information that benefits the development of the program, facilities and timing.
- The process evaluation will provide information concerning the training and lectures, like asked questions and verbal feedbacks.
 - Process evaluation answers the question "What did you do?"
 - It focuses on procedures and actions used to produce results.
 - Process evaluation takes place during the training delivery and at the end of the training.
 - The co-organizer (Responsible for the course)
 - monitors the training,
 - describes the training process as a whole, and
 - records the findings into the written report.
- The outcome evaluation tries to find out how the knowledge, attitudes, and behaviors of the audience developed. It takes a long time to find out the outcomes of the education and training, so in this stage only the main topics participants are able to do at the end of training, will be assessed.

The evaluation process will be as follows:

1. **a.)** Semi-structured questionnaires will be created for the participants (Appendix A): The topics (topic 1, topic 2...) **should be renamed to match to the parts of the course. It is also recommended** that co-organizer (Responsible for the course) writes the name of the school / institution and the

name of the evaluated course in the beginning of the questionnaire before printing it to make sure that the name is correct. . If the questionnaire needs to be compiled to e.g. German, the co-organizer takes care of this.

b.) Semi-structured questionnaires will be created for the trainers / lecturers / teachers

(Appendix B): **It is recommended** that co-organizer (Responsible for the course) writes the name of the school / institution and the name of the evaluated course in the beginning of the questionnaire before printing it to make sure that the name is correct.

2. Time for the survey (approx. 15 minutes) will be allocated in the end of the course
3. In the beginning of the course the co-organizer (Responsible for the course) will inform participants about the evaluation and its importance for further development actions
4. The co-organizer (Responsible for the course) distributes the questionnaires to the participants to be filled in before leaving the course. The purposes of the questionnaire and how the data will be used should be explained clearly to the participants. This will help to improve the response rate and encourage them to make comments that can be useful to improve future programs.
5. The participants complete the questionnaires and return them to the co-organizer.
6. The co-organizer distributes the lecturer's questionnaire to each lecturer to be compiled immediately after his / her part of the course has been finished.
7. The co-organizer collects the questionnaires and deliver them to the evaluator. If there are free speech answers in some other language than English, it is recommendable that the co-organizer translates them to English.
8. The evaluator compiles all feedbacks and summarizes written analysis on the evaluations.

The evaluation approach will be based on a combination of qualitative and quantitative methods. The Microsoft Excel package will be used to transcribe the feedbacks and interviews. Open questions will be categorized, and qualitative analysis of the groups will be done.

The final evaluation report will discuss the following issues:

- Did the curriculum reach the targets?
- How well was the knowledge creation and sharing realized?
- Did the participants assimilate knowledge and tools?
- Was the venue and equipment appropriate for the training course?
- What kind of further development will be needed, if any?

Schedule of the evaluations

The schedule of the evaluation should be matched to the phases of the curriculum. There is no sense to evaluate the course before the students have a true and fair view of the course, its phases and contents. Although it would be preferable to conduct the survey for participants twice, once after the first third of the course and second time in the end of the course, the interval between these two surveys should be at least 6 months, which is not possible in this case. Thus, the survey will be conducted in the end of the course. A closer schedule of each evaluation will be agreed later.

Appendix A: Questionnaire for participants of the _____-course

Please circle the scale that applies to your opinion on the following aspects of the education you participated.

Scale: 1= Strongly disagree, 2=Disagree, 3=Neither disagree or agree, 4=Agree, 5=Strongly agree

In common						
The facilitation (location, room etc.) was suitable for training		1	2	3	4	5
The topics and issues were relevant and responded to the goals of training		1	2	3	4	5
The lecturers explained topics of the lessons, additional questions, experiences, and topical issues arisen during the course well		1	2	3	4	5
There were enough time scheduled for each issue.		1	2	3	4	5
I got valuable knowledge from lessons and examples presented by lecturers.		1	2	3	4	5
I believe that can utilize the knowledge gained from lessons in my future career.		1	2	3	4	5
I can utilize the skills trained and knowledge gained in my future career, e.g. when consulting my clients.		1	2	3	4	5
Comments concerning the common issues						
Lessons and Topics						
Topic 1	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 2	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 3	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 4	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5

Topic 5	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 6	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 7	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 8	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 9	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Free speech						
What was good?						
What could have been done better? (E.g. was some topic missing or unnecessary)						
Would you recommend the course to someone you know? If not, why not?						
Was anything missing that you might need in your future profession / occupation / job?						
Was the proportion of topics and issues inside each topic suitable or should something be increased / decreased?						
Other comments						

Thank you for your answer

Appendix B: Questionnaire for lecturers of the _____ - course

TRAINING / EDUCATION EVALUATION: LECTURERS' OPINION COLLECTED BY THE CO-ORGANIZER

The lecturer should evaluate the course with overall grade (poor, fair, good, very good, excellent).
Written comments are appreciated. Thank you for your co-operation!

Course / Subjects / Issues you were teaching: _____

Experience in teaching: _____ years

1. Overall content of course topics

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

2. How well the topics in curricula match to the needs and goals of the students (average)?

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

3. Schedule compared to the contents and goals of the programme

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

4. Level of the students

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

5. Motivation of the students

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

6. How do the contents of the education match to the requirements of the qualification

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

Thank you for your answer

Further vocational training

Evaluation concept WP5

Satakunta University of Applied Sciences (SAMK), project partner number 11

Compiled by Dr Kari Lilja and Dr Sirpa Sandelin

Introduction

Evaluating the training, teaching and learning has been an emerging issue in the 1980's when it was actively researched within several disciplines like education, pedagogics, psychology and organizational sciences. During the 1990's the enthusiasm flagged, but the interest woke up again in parallel with the waves of refugees and immigrants arriving to the Europe. The needs to include newcomers to the hosting society, to teach local culture, habits and language, and to train professional skills to comply with the local requirements have highlighted the importance of developing new teaching and training methods. These new methods and tools in teaching and training should be compatible with the requirements set by cultural diversity of both the refugees and immigrants, and the societies more or less voluntary receiving the incomers.

Furthermore, during the past two decades the western countries have met - in addition to enormous flood of settlers - another phenomenon that challenges the education system: The post-war baby boom generation reaches age of retirement. This has two consequences, both requiring the answers from school systems. Firstly, the western countries should have a capability and capacity to educate and train more and more nursing personnel to cover both the vacuum left by those retiring, and to answer to the needs of ageing population. Secondly, these countries should be capable to renew their education systems to be able to satisfy the needs of business, to be able to train skilled labor and to be able to educate more persons that are both capable and willing to create their career as entrepreneurs and to continue the work of retiring entrepreneurs. If this fails, the consequences for European economy might be fatal or even disastrous.

This challenges not only schools and universities or teachers and trainees, but also those developing the courses and teaching and training methods used in the courses. Evaluating the learning of trainees, used methods and the impact of these methods on the learning would help teachers, designers and analysts to improve the methods.

The aims and targets of the evaluation are context dependent issues. Thus, in ideal world, the courses, the methods used in the courses and the means to evaluate the outcome of the course, the learning of trainees and the efficacy and success of the methods should be designed together so that the whole course is seen as main process inside which the training and evaluation are parallel subprocesses. This would be the best way to ensure that exactly those goals set to this unique program are measured during the evaluation. In this case "Train the Trainer" and other education programs have been planned parallel with the planning of the evaluation.

Education Program

Further vocational trainings programs (EQF level 4 and 5) for owners, managers and qualified workers of SMEs (WP5).

- Six courses on management and technologies in water, wastewater and waste management including cradle to cradle.
- The trainings are specifically tailored to SME needs and different qualification levels and combine the transfer of technical, professional and management know-how.
- Development of an integration program for the unemployed (EQF level 4) in order to be able to place the unemployed in permanent jobs through further training seminars and a further training qualification.
- Coordination of the program with training providers, SMEs and employment services.

This program has been developed to respond the challenges met by those aiming to strengthen the awareness and competences for target-oriented environmental policy and workplace innovations in SMEs via training and consulting the entrepreneurs and personnel of SMEs. The students should be able to support companies in the development of their environmental policy as well as in workplace innovations in the framework of the circular economy through consulting and qualifying support.

The following should be achieved:

- a) Attraction of much needed junior staff for SMEs.
- b) Development of capacities to increase awareness for Workplace Innovations.
- c) Realization of individual Workplace Innovation projects, which the students carry out as employees of the participating SMEs with the support of professors of the respective university in connection with the dual studies in SMEs.

The target groups of the program are owners, managers and qualified workers of SMEs (WP5) with capabilities and interest to rise in their career.

The planned duration of course varies depending to the educational level and purposes. Each lesson lasts 45 minutes. Methods used in lessons will be lectures, teaching talks, working in small groups, case studies and examples from real world. Material used during the teaching consists of e.g. information material (basics & backgrounds, thematic introductions etc.), presentations, questionnaires, question guides, checklists, analysis results, good practice examples and so on. Course should contain at least following issues: Basics/overview of essential tasks and contents of business-oriented and productivity-enhancing measures in circular economy and workplace innovation (in each of the courses)

The SME-specific training course should contain following topics (overview):

- a. One of the six courses on management and technologies in water, wastewater and waste management including cradle to cradle.
 - A. Preparation and management of SMEs for work in the Green Economy
 - B. Waste reduction and recycling management
 - C. Wastewater, treatment and recycling management
 - D. Water supply and saving
 - E. Cradle to Cradle in SMEs
 - F. Energy generation from wastewater and waste
- b. Attitudes and behavior in consulting processes
- c. Supporting activities by WWW&CE / Centres of Competence

Evaluation of courses including gained results and found problems is essential to be able to develop further the existing training programs as well as to consider the experiences gathered from these programs when building new curricula. The evaluation process has been designed hand in hand with the courses themselves. This concept presents an overview of evaluation process and questionnaire.

When evaluating course, the goals and real results should be compared. This is not always possible or fair and just. The evaluation should be targeted only to such measurable issues on which the designer, teacher, facilitator or student himself has an impact. Evaluating the impacts of training programs against the presented main goals would require large societal researches including the recording of the initial situation before starting the programs and the long-term follow-up research in which the conducted interventions and actions (In this case new forms of training and education) and their impacts on change of variables is followed (Figure 1). The final conclusions can be drawn just after some years or after decades. In this project this is not possible and the whole evaluation process must be rethought and simplified.

The most important variables, on point of view of achieving the goals set, are the motivation of student, the support he gets, the relevance of issues in curricula, the quality material and training and the ability of facilities to support training and learning. Although most of the variables presented above are so called soft variables, which can't be measured directly by targeting the measurement tool to some point or phase in the process, they can be assessed indirectly by assessing the feelings and comments of participants and other stakeholders.

Common steps of evaluation

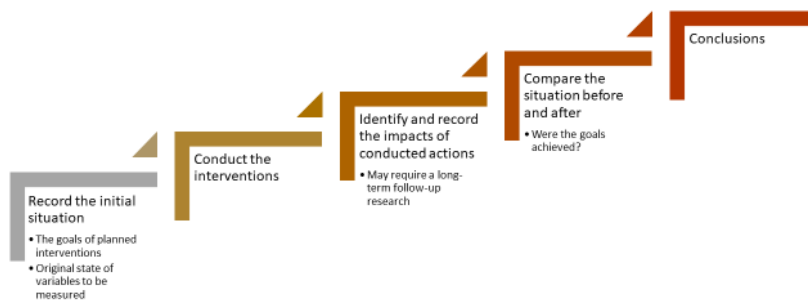


Figure 1: Evaluation process

The assessment of feelings and comments can be done with many alternative tools, e.g. surveys, interviews and follow-up studies in which a researcher follows lessons and training in practice and observes the students and teachers collecting comments and registering e.g. the atmosphere in the classrooms and during the training in the workplaces.

In this case the experiences and comments of participants will be surveyed by simple questionnaire

with questions approaching the common impressions, the applicability of facilities, the relevancy and importance of each issue and the experienced quality of each lesson and material used.

Evaluation concept

The objective of the evaluation is to determine whether the goals of the program will be achieved in the implementations evaluated, and how the program has impact on student's career and opportunities.

The type of the evaluation follows standard course evaluation methods, i.e. formative, process and outcome evaluation, the latter only partial:

- The formative evaluation will provide feedback to the curriculum designers, developers and implementers to ensure that designed and implemented courses really meets the needs of the intended audience, i.e. assure or improve the quality of program. Formative evaluation and analyses will answer to the following questions:
 - Were the goals and objectives suitable for the audience?
 - Were the training methods and course materials appropriate for the audience?
 - Should the program or some part of it be developed further and if, how?
 - Furthermore, formative evaluation also provides information that benefits the development of the program, facilities and timing.
- The process evaluation will provide information concerning the training and lectures, like asked questions and verbal feedbacks.
 - Process evaluation answers the question "What did you do?"
 - It focuses on procedures and actions used to produce results.
 - Process evaluation takes place during the training delivery and at the end of the training.
 - The co-organizer (Responsible for the course)
 - monitors the training,
 - describes the training process as a whole, and
 - records the findings into the written report.
- The outcome evaluation tries to find out how the knowledge, attitudes, and behaviors of the audience developed. It takes a long time to find out the outcomes of the education and training, so in this stage only the main topics participants are able to do at the end of training, will be assessed.

The evaluation process will be as follows:

1. **a.)** Semi-structured questionnaires will be created for the participants (Appendix A): The topics (topic 1, topic 2...) **should be renamed to match to the parts of the course. It is also recommended** that co-organizer (Responsible for the course) writes the name of the school / institution, the name

of the evaluated course and the number of the workshop (1st / 2nd) in the beginning of the questionnaire before printing it to make sure that the identification data needed in the evaluation is correct. If the questionnaire needs to be compiled to e.g. German, the co-organizer takes care of this.

b.) Semi-structured questionnaires will be created for the trainers / lecturers / teachers (Appendix B): **It is recommended** that co-organizer (Responsible for the course) writes the name of the school / institution, the name of the evaluated course and the number of the workshop (1st / 2nd) in the beginning of the questionnaire before printing it to make sure that the identification data needed in the evaluation is correct.

2. Time for the survey (approx. 15 minutes) will be allocated in the end of each workshop
3. In the beginning of the course the co-organizer (Responsible for the course) will inform participants about the evaluation and its importance for further development actions
4. The co-organizer (Responsible for the course) distributes the questionnaires to the participants to be filled in before leaving the workshop. The purposes of the questionnaire and how the data will be used should be explained clearly to the participants. This will help to improve the response rate and encourage them to make comments that can be useful to improve future programs.

Note: Survey for participants will be conducted twice, in the end of both workshops!

5. The participants complete the questionnaires and return them to the co-organizer.
6. The co-organizer distributes the lecturer's questionnaire to each lecturer to be compiled immediately after his / her part of the course has been finished.

Note: If the lecturer teaches in both workshops, he / she completes the questionnaire twice!

7. In the end of the learning on the job -phase, representant of each enterprise involved in the training will be interviewed by the co-organizer. Guidelines for the interview will be found in appendix C. Interviews can be conducted face to face or via Skype, Microsoft Teams or e-mail, some examples to be given.
8. The co-organizer collects the questionnaires and answers of interviews and deliver them to the evaluator. If there are free speech answers in some other language than English, it is recommendable that the co-organizer translates them to English.
9. The evaluator compiles all feedbacks and summarizes written analysis on the evaluations.

The evaluation approach will be based on a combination of qualitative and quantitative methods. The Microsoft Excel package will be used to transcribe the feedbacks and interviews. Open questions will be categorized, and qualitative analysis of the groups will be done.

The final evaluation report will discuss the following issues:

- Did the curriculum reach the targets?
- How well was the knowledge creation and sharing realized?
- Did the participants assimilate knowledge and tools?
- Was the venue and equipment appropriate for the training course?
- What kind of further development will be needed, if any?

Schedule of the evaluations

The schedule of the evaluation should be matched to the phases of the curriculum. There is no sense to evaluate the course before the students have a true and fair view of the course, its phases and contents. A closer schedule of each evaluation will be agreed later.

Appendix A: Questionnaire for participants of the _____-course

Please circle the scale that applies to your opinion on the following aspects of the education you participated.

Scale: 1= Strongly disagree, 2=Disagree, 3=Neither disagree or agree, 4=Agree, 5=Strongly agree

In common						
The facilitation (location, room etc.) was suitable for training		1	2	3	4	5
The topics and issues were relevant and responded to the goals of training		1	2	3	4	5
The lecturers explained topics of the lessons, additional questions, experiences, and topical issues arisen during the course well		1	2	3	4	5
There were enough time scheduled for each issue.		1	2	3	4	5
I got valuable knowledge from lessons and examples presented by lecturers.		1	2	3	4	5
I believe that can utilize the knowledge gained from lessons in my future career.		1	2	3	4	5
I can utilize the skills trained and knowledge gained in my future career, e.g. when consulting my clients.		1	2	3	4	5
Comments concerning the common issues						
Lessons and Topics						
Topic 1	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 2	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 3	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 4	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5

Topic 5	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 6	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 7	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 8	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 9	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Free speech						
What was good?						
What could have been done better? (E.g. was some topic missing or unnecessary)						
Would you recommend the course to someone you know? If not, why not?						
Was anything missing that you might need in your future profession / occupation / job?						
Was the proportion of topics and issues inside each topic suitable or should something be increased / decreased?						
Other comments						

Thank you for your answer

Appendix B: Questionnaire for lecturers of the _____ - course

TRAINING / EDUCATION EVALUATION: LECTURERS' OPINION COLLECTED BY THE CO-ORGANIZER

The lecturer should evaluate the course with overall grade (poor, fair, good, very good, excellent).
Written comments are appreciated. Thank you for your co-operation!

Course / Subjects / Issues you were teaching: _____

Experience in teaching: _____ years

1. Overall content of course topics

1 = Poor		Comments:
2 = Satisfactory		
3 = Good		
4 = Very good		
5 = Excellent		

2. How well the topics in curricula match to the needs and goals of the students (average)?

1 = Poor		Comments:
2 = Satisfactory		
3 = Good		
4 = Very good		
5 = Excellent		

3. Schedule compared to the contents and goals of the programme

1 = Poor		Comments:
2 = Satisfactory		
3 = Good		
4 = Very good		
5 = Excellent		

4. Level of the students

1 = Poor		Comments:
2 = Satisfactory		
3 = Good		
4 = Very good		
5 = Excellent		

5. Motivation of the students

1 = Poor		Comments:
2 = Satisfactory		
3 = Good		
4 = Very good		
5 = Excellent		

6. How do the contents of the education match to the requirements of the qualification

1 = Poor		Comments:
2 = Satisfactory		
3 = Good		
4 = Very good		
5 = Excellent		

Thank you for your answer

Appendix C: Guidelines for interviews of enterprises involved in the _____ - course.

TRAINING / EDUCATION EVALUATION: FEEDBACK FROM ENTERPRISES COLLECTED BY THE CO-ORGANIZER

Date ____/____/20____ Course _____ Enterprise _____

The interviewer will ask the following questions from each enterprises' representant.

1. Schedule: Was the schedule of theory and practice in line with company's needs? How about the schedule and order of topics?

2. Content: Did the training contain issues and topics needed in your business? Was something missing? If, what?

3. Realized Project: Did the project realized during the learning on the job -phase achieve the goals set to it? If not, what remained undone?

4. What could have been done differently? What should have been done differently? What should not be changed?

Thank you for your answer



University education

Evaluation concept WP6

Satakunta University of Applied Sciences (SAMK), project partner number 11

Compiled by Dr Kari Lilja and Dr Sirpa Sandelin

Introduction

Evaluating the training, teaching and learning has been an emerging issue in the 1980's when it was actively researched within several disciplines like education, pedagogics, psychology and organizational sciences. During the 1990's the enthusiasm flagged, but the interest woke up again in parallel with the waves of refugees and immigrants arriving to the Europe. The needs to include newcomers to the hosting society, to teach local culture, habits and language, and to train professional skills to comply with the local requirements have highlighted the importance of developing new teaching and training methods. These new methods and tools in teaching and training should be compatible with the requirements set by cultural diversity of both the refugees and immigrants, and the societies more or less voluntary receiving the incomers.

Furthermore, during the past two decades the western countries have met - in addition to enormous flood of settlers - another phenomenon that challenges the education system: The post-war baby boom generation reaches age of retirement. This has two consequences, both requiring the answers from school systems. Firstly, the western countries should have a capability and capacity to educate and train more and more nursing personnel to cover both the vacuum left by those retiring, and to answer to the needs of ageing population. Secondly, these countries should be capable to renew their education systems to be able to satisfy the needs of business, to be able to train skilled labor and to be able to educate more persons that are both capable and willing to create their career as entrepreneurs and to continue the work of retiring entrepreneurs. If this fails, the consequences for European economy might be fatal or even disastrous.

This challenges not only schools and universities or teachers and trainees, but also those developing the courses and teaching and training methods used in the courses. Evaluating the learning of trainees, used methods and the impact of these methods on the learning would help teachers, designers and analysts to improve the methods.

The aims and targets of the evaluation are context dependent issues. Thus, in ideal world, the courses, the methods used in the courses and the means to evaluate the outcome of the course, the learning of trainees and the efficacy and success of the methods should be designed together so that the whole course is seen as main process inside which the training and evaluation are parallel subprocesses. This would be the best way to ensure that exactly those goals set to this unique program are measured during the evaluation. In this case "Train the Trainer" and other education programs have been planned parallel with the planning of the evaluation.

Education Program

Higher education study modules (EQF level 6) on SME management and technologies in water, wastewater, waste and environmental services (WP6)

- Four study modules (EQF level 6) on SME management and technologies in water, wastewater, waste and environmental services, to be carried out in the dual study system and integrated into existing Bachelor degree program.

This program has been developed to respond the challenges met by those aiming to strengthen the awareness and competences for target-oriented environmental policy and workplace innovations in SMEs via training and consulting the entrepreneurs and personnel of SMEs. The students should be able to support companies in the development of their environmental policy as well as in workplace innovations in the framework of the circular economy through consulting and qualifying support.

The following should be achieved:

- a) High-quality qualification of young entrepreneurs and managers (EQF Level 6)
- b) Attraction of much needed junior staff for SMEs
- c) Development of capacities to increase awareness for Workplace Innovations.

- d) Realization of individual Workplace Innovation projects, which the students carry out as employees of the participating SMEs with the support of professors of the respective university in connection with the dual studies in SMEs.

The target groups of the program are owners, managers and qualified workers of SMEs (WP5) with capabilities and interest to rise in their career, students in universities (of applied sciences) and students studying in Dual (Bachelor & Meister) Programmes.

The planned duration of course varies depending to the educational level and purposes. Each lesson lasts 45 minutes. Methods used in lessons will be lectures, teaching talks, working in small groups, case studies and examples from real world. Material used during the teaching consists of e.g. information material (basics & backgrounds, thematic introductions etc.), presentations, questionnaires, question guides, checklists, analysis results, good practice examples and so on. Course should contain at least following issues: Basics/overview of essential tasks and contents of business-oriented and productivity-enhancing measures in circular economy and workplace innovation (in each of the courses)

The SME-specific training course should contain following topics (overview):

- a. One of four study modules (EQF level 6) on SME management and technologies in water, wastewater, waste and environmental services, to be carried out in the dual study system and integrated into existing Bachelor degree programs.
 - A. Management & Technologies of the Water and Wastewater industry
 - B. Waste Management & Technologies
 - C. Management & technologies of the circular economy
 - D. Management of sustainable economic activity
- b. Attitudes and behavior in consulting processes
- c. Supporting activities by WWW&CE / Centres of Competence

Evaluation of courses including gained results and found problems is essential to be able to develop further the existing training programs as well as to consider the experiences gathered from these programs when building new curricula. The evaluation process has been designed hand in hand with the courses themselves. This concept presents an overview of evaluation process and questionnaire.

When evaluating course, the goals and real results should be compared. This is not always possible or fair and just. The evaluation should be targeted only to such measurable issues on which the designer, teacher, facilitator or student himself has an impact. Evaluating the impacts of training programs against the presented main goals would require large societal researches including the recording of the initial situation before starting the programs and the long-term follow-up research in which the conducted interventions and actions (In this case new forms of training and education) and their impacts on change of variables is followed (Figure 1). The final conclusions can be drawn just after some years or after decades. In this project this is not possible and the whole evaluation process must be rethought and simplified.

The most important variables, on point of view of achieving the goals set, are the motivation of student, the support he gets, the relevance of issues in curricula, the quality material and training and the ability of facilities to support training and learning. Although most of the variables presented above are so called soft variables, which can't be measured directly by targeting the measurement tool to some point or phase in the process, they can be assessed indirectly by assessing the feelings and comments of participants and other stakeholders.

Common steps of evaluation

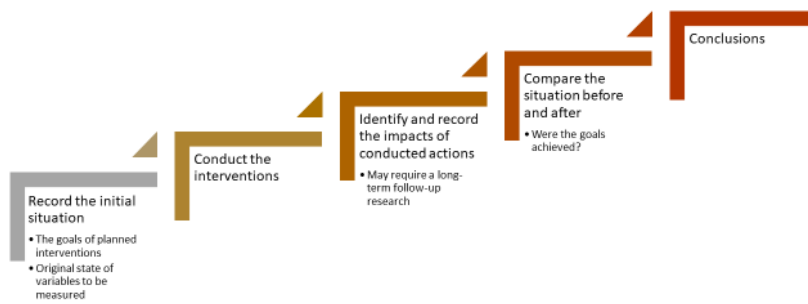


Figure 1: Evaluation process

The assessment of feelings and comments can be done with many alternative tools, e.g. surveys, interviews and follow-up studies in which a researcher follows lessons and training in practice and observes the students and teachers collecting comments and registering e.g. the atmosphere in the classrooms and during the training in the workplaces.

In this case the experiences and comments of participants will be surveyed by simple questionnaire

with questions approaching the common impressions, the applicability of facilities, the relevancy and importance of each issue and the experienced quality of each lesson and material used.

Evaluation concept

The objective of the evaluation is to determine whether the goals of the program will be achieved in the implementations evaluated, and how the program has impact on student's career and opportunities.

The type of the evaluation follows standard course evaluation methods, i.e. formative, process and outcome evaluation, the latter only partial:

- The formative evaluation will provide feedback to the curriculum designers, developers and implementers to ensure that designed and implemented courses really meets the needs of the intended audience, i.e. assure or improve the quality of program. Formative evaluation and analyses will answer to the following questions:
 - Were the goals and objectives suitable for the audience?
 - Were the training methods and course materials appropriate for the audience?
 - Should the program or some part of it be developed further and if, how?
 - Furthermore, formative evaluation also provides information that benefits the development of the program, facilities and timing.
- The process evaluation will provide information concerning the training and lectures, like asked questions and verbal feedbacks.
 - Process evaluation answers the question "What did you do?"
 - It focuses on procedures and actions used to produce results.
 - Process evaluation takes place during the training delivery and at the end of the training.
 - The co-organizer (Responsible for the course)
 - monitors the training,
 - describes the training process as a whole, and
 - records the findings into the written report.
- The outcome evaluation tries to find out how the knowledge, attitudes, and behaviors of the audience developed. It takes a long time to find out the outcomes of the education and training, so in this stage only the main topics participants are able to do at the end of training, will be assessed.

The evaluation process will be as follows:

1. **a.)** Semi-structured questionnaires will be created for the participants (Appendix A): The topics (topic 1, topic 2...) **should be renamed to match to the parts of the course. It is also recommended** that co-organizer (Responsible for the course) writes the name of the school / institution and the

name of the evaluated course in the beginning of the questionnaire before printing it to make sure that the identification data needed in the evaluation is correct. If the questionnaire needs to be compiled to e.g. German, the co-organizer takes care of this.

b.) Semi-structured questionnaires will be created for the trainers / lecturers / teachers

(Appendix B): **It is recommended** that co-organizer (Responsible for the course) writes the name of the school / institution and the name of the evaluated course in the beginning of the questionnaire before printing it to make sure that the identification data needed in the evaluation is correct.

2. Time for the survey (approx. 15 minutes) will be allocated in the end of each workshop
3. In the beginning of the course the co-organizer (Responsible for the course) will inform participants about the evaluation and its importance for further development actions
4. The co-organizer (Responsible for the course) distributes the questionnaires to the participants to be filled in before leaving the workshop. The purposes of the questionnaire and how the data will be used should be explained clearly to the participants. This will help to improve the response rate and encourage them to make comments that can be useful to improve future programs.
5. The participants complete the questionnaires and return them to the co-organizer.
6. The co-organizer distributes the lecturer's questionnaire to each lecturer to be compiled immediately after his / her part of the course has been finished.
7. The co-organizer collects the questionnaires and deliver them to the evaluator. If there are free speech answers in some other language than English, it is recommendable that the co-organizer translates them to English.
8. The evaluator compiles all feedbacks and summarizes written analysis on the evaluations.

The evaluation approach will be based on a combination of qualitative and quantitative methods. The Microsoft Excel package will be used to transcribe the feedbacks and interviews. Open questions will be categorized, and qualitative analysis of the groups will be done.

The final evaluation report will discuss the following issues:

- Did the curriculum reach the targets?
- How well was the knowledge creation and sharing realized?
- Did the participants assimilate knowledge and tools?
- Was the venue and equipment appropriate for the training course?
- What kind of further development will be needed, if any?

Schedule of the evaluations

The schedule of the evaluation should be matched to the phases of the curriculum. There is no sense to evaluate the course before the students have a true and fair view of the course, its phases and contents. A closer schedule of each evaluation will be agreed later.

Appendix A: Questionnaire for participants of the _____-course

Please circle the scale that applies to your opinion on the following aspects of the education you participated.

Scale: 1= Strongly disagree, 2=Disagree, 3=Neither disagree or agree, 4=Agree, 5=Strongly agree

In common						
The facilitation (location, room etc.) was suitable for training		1	2	3	4	5
The topics and issues were relevant and responded to the goals of training		1	2	3	4	5
The lecturers explained topics of the lessons, additional questions, experiences, and topical issues arisen during the course well		1	2	3	4	5
There were enough time scheduled for each issue.		1	2	3	4	5
I got valuable knowledge from lessons and examples presented by lecturers.		1	2	3	4	5
I believe that can utilize the knowledge gained from lessons in my future career.		1	2	3	4	5
I can utilize the skills trained and knowledge gained in my future career, e.g. when consulting my clients.		1	2	3	4	5
Comments concerning the common issues						
Lessons and Topics						
Topic 1	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 2	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 3	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 4	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5

Topic 5	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 6	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 7	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 8	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Topic 9	The presentation was clear and understandable	1	2	3	4	5
	The issues were relevant and topical	1	2	3	4	5
	The information presented were up-to-date	1	2	3	4	5
Free speech						
What was good?						
What could have been done better? (E.g. was some topic missing or unnecessary)						
Would you recommend the course to someone you know? If not, why not?						
Was anything missing that you might need in your future profession / occupation / job?						
Was the proportion of topics and issues inside each topic suitable or should something be increased / decreased?						
Other comments						

Thank you for your answer

Appendix B: Questionnaire for lecturers of the _____ - course

TRAINING / EDUCATION EVALUATION: LECTURERS' OPINION COLLECTED BY THE CO-ORGANIZER

The lecturer should evaluate the course with overall grade (poor, fair, good, very good, excellent).
Written comments are appreciated. Thank you for your co-operation!

Course / Subjects / Issues you were teaching: _____

Experience in teaching: _____ years

1. Overall content of course topics

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

2. How well the topics in curricula match to the needs and goals of the students (average)?

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

3. Schedule compared to the contents and goals of the programme

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

4. Level of the students

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

5. Motivation of the students

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

6. How do the contents of the education match to the requirements of the qualification

1 = Poor		Comments:
2= Satisfactory		
3= Good		
4= Very good		
5= Excellent		

Thank you for your answer